

THE
Estelman
BOOK OF
FARM
INFORMATION



THE
Eshelman
BOOK OF FARM
INFORMATION

*Livestock: Feedstuffs: Crops:
Construction and Upkeep:
General Hints: Useful
Facts: and Legal
Pointers*



Prepared and Printed for
JOHN W. ESHELMAN & SONS
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A PERSONAL MESSAGE TO THE FARMER

“Rule of thumb” is all right when you can’t find a better method; but today more than ever before, all of us must figure carefully if we are to prosper. Here are 64 pages of useful information. Just keep this book handy, and when a neighbor says a four-inch pipe will carry twice as much as a two-inch pipe, you can show him he’s wrong!

When it comes to feeding . . . you can’t find a better method than to use *Eshelman* for all livestock and poultry. For 91 years these fine feeds have been giving farmers best results at the lowest possible cost. They can do as much for you . . . try them!

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LIVESTOCK



COMPARISON OF DAIRY BREEDS

The following tables contain useful information about the principal breeds of dairy cattle:

Breed	Approximate Size		Avg. Birth Weight Calves (both sexes)
	Bull	Cow	
Holstein-Friesian ..	2400 to 3000 lbs.	1600 to 2400 lbs.	89 lbs.
Guernsey	1600 lbs.	1100 lbs.	71 lbs.
Jersey	1300 to 1600 lbs.	900 to 1100 lbs.	55 lbs.
Ayrshire	1600 to 2200 lbs.	1000 to 1600 lbs.	72 lbs.
Brown Swiss	1500 to 2500 lbs.	1300 to 1400 lbs.	100 lbs.

Table showing typical yearly production and the composition of milk for the various breeds:

Breed	Typical Average Yearly Production in Pounds		Composition of Milk	
	Fat	Milk	Total Solids %	Fats %
Holstein-Friesian	535	15,796	12.00	3.45
Guernsey	489	9,799	14.49	4.98
Jersey	782	15,936	14.70	5.35
Ayrshire	637	14,721	12.61	3.66
Brown Swiss	510	12,740	13.27	4.24
Dutch Belted	518	11,511	..	..
Milking Shorthorn	391	9,943	13.38	4.05
Red Polled	623	12,754	..	..





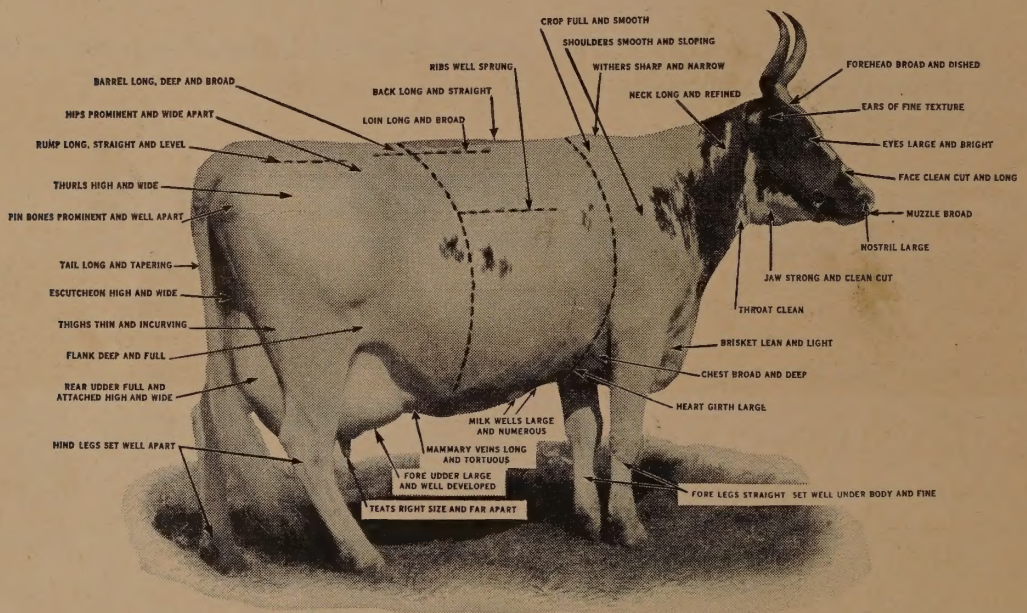
LIVESTOCK



PAINT POISONING OF LIVESTOCK

Livestock are frequently poisoned by eating paint and other forms of lead (red lead, sugar of lead, litharge). Cattle are attracted by paint and will lick empty and discarded containers and even freshly painted surfaces. Keep animals away from freshly painted buildings, fences, and billboards. Even old paint is sometimes dangerous. Drinking water conveyed through lead pipes may dissolve enough of the metal to be poisonous. Cows have been known to be fatally poisoned by eating bullet "splashes" caused by lead bullets striking a hard object. Cattle are the most susceptible to lead poisoning. On the farm, sheep, pigs, and dogs are occasionally poisoned through lead, but horses are rarely victims.

THE POINTS TO LOOK FOR IN DAIRY COWS



INDICATIONS OF GOOD HEALTH

Thin of flesh but not scrawny; alert and vigorous; a soft healthy coat; loose, pliable skin; a deep long chest; large nostrils; a long, clean-cut face; large bright eyes; shoulders, withers, hips, and pin bones prominent and free from fleshiness; and a general appearance of thrift and contentment, are all signs of good health.

Shape, size, and temperament are good indications of dairy cow value. She produces largely according to size; the larger the cow (within the breed), the more milk she produces.

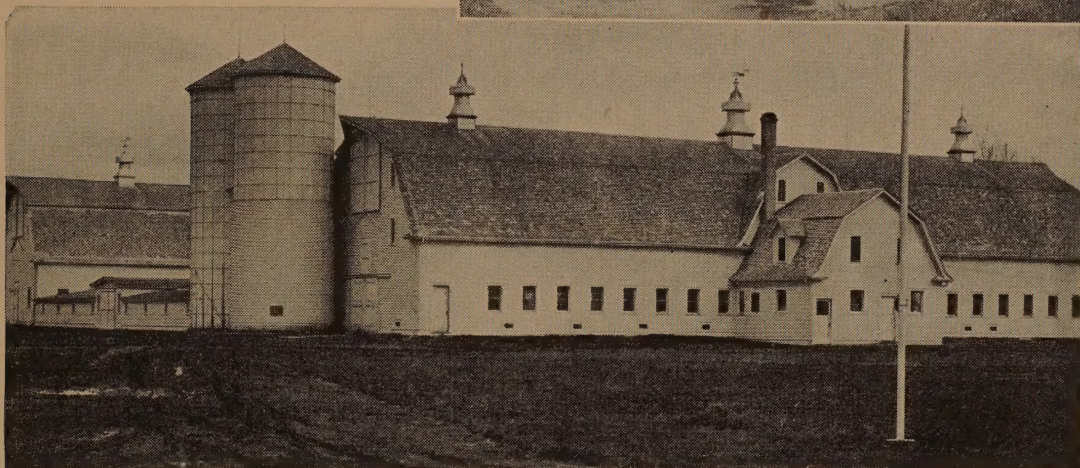


LIVESTOCK



Holstein Dairy barns on the farm of E. C. Schroeder, Moorhead, Minnesota

A good farm layout; John G. Rettig, Owner, Crown Point, Indiana



DAIRY BARN CONSTRUCTION

Some of the important factors to consider in selecting the type of barn you need are climate, topography, drainage, location relative to other buildings, size and stage of development of your dairy project, fire risk, materials available for construction, and local regulations covering the production, handling, and disposal of milk.

The most common types of dairy barns are the one-story cow stable, with feed in a separate building, and the two-story barn, with feed stored overhead. Colder sections of the country prefer the two-story barn, while in the South and in moderate climates the one-story is more common.

Blueprints of various dairy barns, milk houses, and silos may be obtained free of charge from U. S. Department of Agriculture or from local county agents. When you ask for plans, tell the number of cows to be housed; whether facing in or out; whether one- or two-story barn is preferred.

BREEDS OF DAIRY CATTLE



The
JERSEY

SOPHIE'S EMILY, 352,291. W. R. Kenan, Jr., Rand-
leigh Farm, Lockport, N. Y. A. R. 17,393 lbs.
milk, 838.93 lbs. fat.

The Jersey cow is medium sized. The score cards for cows call for a weight of 900 to 1,100 pounds for mature cows, while the rating for bulls is 1,300 to 1,600 pounds. Jersey type conforms very closely to what is known as ideal dairy type. Color is usually solid fawn, although white is not considered a detriment. The Jersey yields the highest quality milk now produced, averaging 5.35 per cent butter fat and 14.70 per cent total solids.

The Holstein-Friesian is the largest of the dairy breeds, males frequently attaining a weight of 2,400 to 3,000 pounds, and cows from 1,600 pounds to upward of a ton.

The milk is of moderate fat content, and is of a composition more like mother's milk. It is estimated that this breed—with its grades—produces nearly seventy per cent of the market milk used in northern consuming centers.

The
HOLSTEIN-
FRIESIAN



BESS JOHANNA ORMSBY, Winterthur Farms, Winter-
thur, Del. 30,143.3 lbs. milk 1,198.09 lbs. fat.

BREEDS OF DAIRY CATTLE

The DUTCH BELTED



GLORIA, 3231. J. A. Wilson, Valley Farm, Brunswick, Maine. A. R. 16,535.3 lbs. milk, 779.52 lbs. fat

In shape, the Dutch Belted is of typical "dairy" formation, on the small side. Body color black, with a clearly defined, continuous white belt beginning behind the shoulder and extending nearly to the hips. The head is long and somewhat dishing, eyes black and mild, horns long. Barrel large and deep, with ribs well founded and free from fat.

Guernsey cattle are noted for their large and economical production of milk and butter fat. Mature cows weigh about 1,100 lbs. when in milking condition. The cows are good mothers, easy milkers, and gentle. The average production of Guernseys, according to more than 28,712 records, is 9,799.4 pounds milk and 489.5 pounds butter fat.



The GUERNSEY

ANESTHESIA FAITH OF HILL STEAD, 114,354. Mrs. John Wallace Riddle, Farmington, Conn. A. R. 19,741.9 lbs. milk, 1,112.5 lbs. fat

BREEDS OF DAIRY CATTLE



The AYRSHIRE

AUCHENBRAIN WHITE BEAUTY 2ND, 21,687. Penshurst Farm, Narberth, Pa. A. R. 14,721 lbs. milk, 4.33 per cent fat

The Ayrshire is big enough to be an economic producer, but not so large as to fail to actively gain a living under rather strenuous farm conditions. Ayrshire cows weigh from 1,000 to 1,600 pounds, bulls from 1,600 to 2,200 pounds. Ayrshire milk almost invariably tests four per cent. It is very light in color, due to the fact that the fat globules are quite small and are uniformly distributed throughout the milk.

Brown Swiss that run true to type are solid in color. The males are dark seal brown; the females run from light brown to dark steel gray, with lighter colored muzzles and ears. The eyes are full and mild, but bright, usually black. The barrel of the body is large and well rounded, the udders and teats white, with milk veins prominent. Cows weigh 1,300 to 1,400 pounds, bulls 1,500 to 2,500 lbs.

The BROWN SWISS



SWISS VALLEY GIRL 10TH, 7887. The Hull Bros. Co., Painesville, O. A. R. 27,513.6 lbs. milk, 1,106.33 lbs. fat

BREEDS OF DAIRY CATTLE

RED POLLED



MARHAM REBUNA 17TH, 62,577. Adolph P. Arp, Eldridge, Iowa. 12,754 lbs. of milk, 623.51 lbs. of fat.

The Red Polled is a descendant from the Norfolk and Suffolks of North East England. This cow is able to consume a reasonable amount of feed and convert it into milk products very economically. She is smooth, with straight lines; deep of body, showing strong constitution; plenty of barrel, being able to consume quantities of the more bulky and cheaper feed grown on the average farm. They are consistent breeders and produce regularly, year after year.

The Milking Shorthorn standards pay no attention to the "wedge-shape" theory but they do favor solid colors red, white or roan. The average for all mature Shorthorn records (1,265 in number) in the United States is 9,943 lbs. of milk, averaging 3.94% in butter fat. Ninety percent of the milk for the London, England, market is produced by Shorthorn cows, either pure bred or high grade.



MILKING SHORTHORN

MELBA 15TH OF DARBALARA. 32,522 lbs. of milk, 1,614 lbs. fat (world's butter-fat record)



POULTRY BREEDS



COMPARISON OF POULTRY BREEDS

The poultry industry is concerned with keeping chickens for producing either eggs or meat or both. The breeds and varieties described below include most of the chickens used for that purpose.

THE AMERICAN CLASS includes:

MEAT AND EGG PRODUCERS

Breed	Variety
Plymouth Rock.....	Barred, White, Buff, Silver Pencilled, Partridge, Columbian, Blue
Wyandotte.....	White, Buff, Silver Laced, Golden Laced, Partridge, Silver Pencilled, Columbian, Black
Rhode Island Red.....	Single Comb, Rose Comb
Rhode Island White.....	Rose Comb
Jersey Black Giant	
Java.....	Black, Mottled
Dominique, Buckeye, Chantecler	

All birds belonging to the American Class are clean-legged . . . shanks are free from feathers. Except the Rhode Island Red, Java and Jersey Black Giant, all have yellow beaks, shanks, and skin. All of the American Class birds have red ear lobes, lay brown-shelled eggs, and are classed as "broody."

Breed	Standard Weight in Pounds			
	Cock	Hen	Cockerel	Pullet
Plymouth Rock.....	9½	7½	8	6
Wyandotte.....	8½	6½	7½	5½
Rhode Island Red.....	8½	6½	7½	5½
Jersey Black Giant.....	13	10	11	8

THE ASIATIC CLASS includes: Brahma (Light, Dark Buff), Cochin (Buff, Partridge, White, Black), and Langshan (Black, White). These breeds have large bodies, feathered shanks, and are usually heavy in bone. All have yellow skin except the Black Langshan, whose skin is pinkish white. All have red ear lobes, lay brown-shelled eggs, and are classed as broody.



POULTRY BREEDS



TABLE SHOWING STANDARD WEIGHTS, *Asiatic Class*

Breed	Standard Weight in Pounds			
	Cock	Hen	Cockerel	Pullet
Brahma (Light)	12	9½	10	8
Brahma (Dark Buff)	11	8½	9	7
Cochin	11	8½	9	7
Langshan	9½	7½	8	6½

THE ENGLISH CLASS includes: Orpington (Buff, Black, White, Blue), Cornish (Dark, White, White-Laced Red), Dorking (White, Silver-Gray, Colored), Sussex (Speckled, Red, Light), Red Cap and Australorp (developed from the Black Orpington).

All of these breeds are of good size and noted for excellent fleshing properties. With the exception of the Cornish, all have white skin and red ear lobes. All are broody and all except the Dorking and the Red Cap lay brown-shelled eggs.

Breed	Standard Weight in Pounds			
	Cock	Hen	Cockerel	Pullet
Orpington	10	8	8½	7
Cornish (Dark, White)	10	7½	8	6
Cornish (White-Laced Red)	8	6	7	5
Dorking, White	7½	6	6½	5
Dorking (Silver-Gray and Colored)	9	7	8	6
Sussex	9	7	7½	6
Australorp	8½	6½	7½	5½

EGG PRODUCERS

THE MEDITERRANEAN CLASS includes: Leghorn (12 varieties), Ancona (Single-Comb, Rose-Comb), Minorca (5 varieties), Spanish, Blue Andalusian, and Buttercup. These breeds are smaller than those in the other classes and are kept for egg-producing rather than meat. All the Mediterranean breeds are classed as non-broody, all are clean-legged, have white or creamy-white ear lobes, and lay white-shelled eggs.



POULTRY BREEDS



TABLE SHOWING STANDARD WEIGHTS, *Mediterranean Class*

Breed	Standard Weight in Pounds			
	Cock	Hen	Cockerel	Pullet
Leghorn.....	6	4½	5	4
Ancona.....	6	4½	5	4
Minorca (S. C. Black).....	9	7½	7½	6½
Minorca (Others).....	8	6½	6½	5½

AVERAGE WEEKLY FEED CONSUMPTION FOR 10 BIRDS

Tabulation from Cornell Extension Bulletin No. 240

Week	S. C. White Leghorns		American Breeds	
	Grain and Mash	Total to Date	Grain and Mash	Total to Date
	Pullets and Cockerels		Pullets and Cockerels	
1	1.49 lbs.	1.49 lbs.	1.12 lbs.	1.12 lbs.
2	2.15 "	3.64 "	1.79 "	2.91 "
3	2.90 "	6.54 "	2.84 "	5.75 "
4	3.75 "	10.29 "	4.02 "	9.77 "
5	5.01 "	15.30 "	5.77 "	15.54 "
6	5.74 "	21.04 "	7.27 "	22.81 "
	Pullets Only		8.49 "	31.30 "
7	7.19 lbs.	28.23 lbs.	10.03 "	41.33 "
8	6.45 "	34.68 "	11.67 "	53.00 "
9	9.94 "	44.62 "	11.74 "	64.74 "
10	8.14 "	52.76 "	13.48 "	78.22 "
11	8.49 "	61.25 "	14.01 "	92.23 "
12	10.70 "	71.95 "	13.96 "	106.19 "
13	10.93 "	82.88 "	12.82 "	119.01 "
14	10.82 "	93.70 "	Pullets Only	
15	11.32 "	105.02 "	13.03 lbs.	132.04 lbs.
16	11.60 "	116.62 "	13.69 "	145.73 "
17	11.51 "	128.13 "	14.83 "	160.56 "
18	11.80 "	139.93 "	13.30 "	173.86 "
19	10.39 "	150.32 "	12.89 "	186.75 "
20	10.92 "	161.24 "	13.10 "	199.85 "
21	12.79 "	174.03 "	14.63 "	214.48 "
22	11.52 "	185.55 "	14.21 "	228.69 "
23	12.47 "	198.02 "	15.53 "	244.22 "
24	12.66 "	210.68 "	14.69 "	258.91 "
25	14.00 "	224.68 "	16.40 "	275.31 "
26	13.11 "	237.79 "	12.92 "	288.23 "
Totals	237.79 lbs.		288.23 lbs.	

MATURE BIRDS will consume about 45.1 lbs. of scratch grains and 32.5 lbs. of laying mash per year. In general, mature birds of the egg breed will consume about 72 lbs. per year.



BETTER EGGS



QUALITY EGG PROGRAM

1. PRODUCE QUALITY EGGS WITH SOUND SHELLS

- Segregate all male birds except during breeding season
- Feed standard rations with at least 50% hard grain*
- Limit green food to 5 lbs. per 100 birds a day
- Use feed containing cod-liver oil for confined birds
- Provide grit and shell at all times

2. PRODUCE CLEAN EGGS

- Provide one nest for every five hens
- Keep nests clean (first choice, Shavings, second, Straw)
- Keep litter clean (first choice, Cut Straw)
- Provide wire over drop-boards (1½" mesh, 16-gauge)

3. COLLECT AND HANDLE EGGS TO PRESERVE QUALITY

- Collect eggs with clean, dry hands
- Collect at least twice daily: 11 and 5 o'clock
- Collect in clean, rigid baskets
- Place in clean egg room, free from odors
- Use home-made egg tester like this . . . →



4. KEEP EGGS COOL

- Don't allow broody hens to remain in nests
- Keep laying houses ventilated
- Keep egg-room temperature 55 degrees or lower
- Don't transfer eggs to cases until thoroughly cooled

5. PACK EGGS DAILY

- Clean all dirty eggs; identify infertile eggs
- Grade all eggs for size; candle all sold at retail
- Pack eggs large end up; use clean, dry cup-flats and fillers
- Don't pack newspaper or excelsior at top and bottom of case
- Use 2 cup-flats reversed, at top and bottom of case
- Use 3-penny cement-coated egg-case nails; never nail cover to center partition

6. PROTECT EGGS IN SHIPMENT

- Ship at least twice each week.
- Protect eggs from wind and heat of sun in shipment.
- Never stand case of eggs on end.
- Avoid unnecessary delays and rough handling in transit. Load carefully—drive carefully.

* A complete ration contains 50% mash and 50% grain. Reduce or increase the grain proportion to reduce or increase the birds' weight.



CLEAN EGGS



To clean soiled eggs, use a medium grade steel wool (somewhat coarser than is sold for household use) . . . it can be bought by the pound at a hardware store. This will remove almost all dirt and stains, including egg yolk, without affecting the appearance or keeping quality of the egg.

There are several things that can be done to reduce the number of dirty eggs. Provide plenty of nests, and use a generous amount of nesting material, preferably planer shavings. Gather eggs at least twice a day; remove broody hens as soon as discovered.

A piece of corrugated board (from a grocery carton) cut to fit the bottom of the nests will prevent breakage in case the nesting material is scratched bare to the bottom. There will always be some dirty eggs, but attention to these details will greatly reduce the number to be cleaned with steel wool.

SOURCES OF ESSENTIAL VITAMINS

According to our present knowledge, Vitamins A, B (the complex), and D are the only ones to which special attention must be given in the feeding of chickens. Vitamin C is generally supposed not to be required in avian nutrition. As for Vitamin E, it is probably essential, but the usual diet is likely to contain a sufficient amount. Balancing a ration demands the skill of combining the ingredients containing Proteins, Carbohydrates, Fats, Fibre, Minerals and Vitamins in order that they may work in harmony to insure perfect digestion for the purpose of maintaining and reproducing life. When you purchase any of the Eshelman Guaranteed Feeds you get a feed scientifically made to meet the particular requirements for which it is used. Whatever your feeding problems, for all livestock and poultry there is an Eshelman Guaranteed Feed containing all necessary elements to give you effective results economically. There's a complete list of these fine feeds, starting on page 54.



White Plymouth Rock Chick.
Just hatched.



POULTRY HOUSING



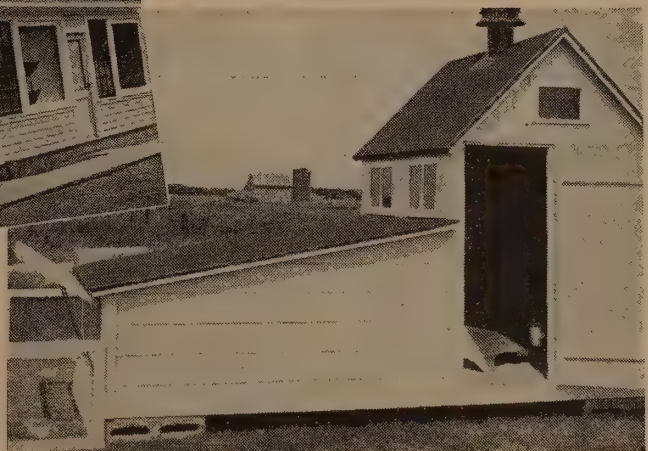
The proper solution of the problem of correct housing of a flock is an important factor in egg production. There is no need for expensive housing or equipment, but if certain fundamental laws are regarded, egg production will be high and your flock will be happy and healthy. Every poultry house should be dry, airy, convenient, sunny, free from draft, and durable.

A HIGH LOCATION.—Be sure to select a plot of ground which is high, so that it will have plenty of air and good water drainage. Since the importance of sunlight cannot be overemphasized, the house should face either to the South or Southeast, in order to get the full benefit from the sun. If possible, select a high spot with trees to the North; they will act as an effective windbreak in winter.

BUILDING THE HOUSE.—The house should be built to afford plenty of room for the birds. Crowding promotes cannibalism, laziness, and unproductivity. Provide at least four square feet of floor space per hen. For instance, if you are planning to house 25 hens, make the floor space 100 square feet or 10 feet long by 10 feet deep. For large flocks it is best to build your house about 18 or 20 feet deep and extend its length according to the number of birds to be housed. If possible, set the house on concrete foundations, extending about $2\frac{1}{2}$ feet below ground. Dirt floors are not only hard to keep clean, but the dampness from the ground is very bad for the birds. The best floor is concrete, covered with deep straw litter, but a board floor with plenty of straw to keep out drafts is very satisfactory. Write to your State Experiment Station for free plans designed especially for your need.



Modern Poultry House With Individual Sections



Model Brooder House

BREEDS OF POULTRY



S. C. WHITE LEGHORN

White throughout; no brassiness or creaminess. Beak, skin, shanks, and toes, yellow. Single comb, free from wrinkles, "thumb-marks," or folds. In female, front of first point erect; remainder of comb drooping. Tail, carried at 40° angle above horizontal.



S. C. DARK BROWN LEGHORN

In the female, the breast is dark reddish salmon, stippled with brown. Wings and back should be black, stippled with a darker brown. There should be no shafting, but plumage should show greenish sheen free from purple. Undercolor slate black.



The Poultry Item

BARRED PLYMOUTH ROCK

Grayish white plumage; feathers crossed by almost black bars, even in width, straight; extending down to the skin. Black spots on shanks do not indicate impurity of breeding.



The Poultry Item

WHITE PLYMOUTH ROCK

Pure white throughout. Should be free from black ticking, brassiness and creaminess. All Plymouth Rocks are long-bodied, with fairly prominent breast and good depth of body.

BREEDS OF POULTRY



BUFF PLYMOUTH ROCK

An even golden buff in all parts of surface color. Feathers with different colored shafts and those sprinkled with lighter color are common but undesirable. Undercolor is a little lighter than the surface.



The Poultry Item

WHITE WYANDOTTE

All Wyandottes have bodies comparatively round; shape and feathering make it appear low-set with rather short back. The White Wyandotte is white throughout; without brassiness, creaminess or black ticking.



BUFF WYANDOTTE

Like all birds of this breed the Buff Wyandotte is a good general-purpose breed well adapted for flesh production and a good layer when bred for egg production. It is an even shade of buff throughout.



The Poultry Item

SILVER-LACED WYANDOTTE

The female has white feathers laced with black over the entire body, except neck feathers which are black, laced with white; also some black in the wings. Both sexes have slate undercolor.

BREEDS OF POULTRY



BUFF COCHIN

An even shade of golden buff in all sections of surface; undercolor lighter buff but also even in shade. Feathers with different colored shafts and feathers sprinkled with lighter color are undesirable.

WHITE COCHIN

Pure white throughout, free from any foreign color. Beak, shanks and toes are yellow. All Cochins are massive in appearance and have abundantly feathered shanks. All have single combs.



BUFF ORPINGTON

Even shade of rich golden buff throughout surface; undercolor is a lighter but even shade of buff. Shanks and toes are pinkish white. This breed makes good table birds and good laying strains have been developed when so bred.

WHITE ORPINGTON

Pure white throughout. No indication of brassiness or creaminess in either surface or undercolor. All Orpingtons have long, deep, well-rounded bodies with full breast and broad back. Rather low-set and heavy in bone.



The Poultry Item



RHODE ISLAND RED

Rather long, rectangular body; good depth and length. Rich brilliant red plumage; even as possible over entire surface except lower webs of primaries (mostly black), upper webs of secondaries (partly black), main tail feathers (black).

BREEDS OF POULTRY

LIGHT BRAHMA

In general, white in plumage color; hackle feathers black with narrow edging of white; main tail feathers black; small tail coverts black with distinct white lacing. Undercolor light bluish-slate. Beak, shanks, toes; yellow.



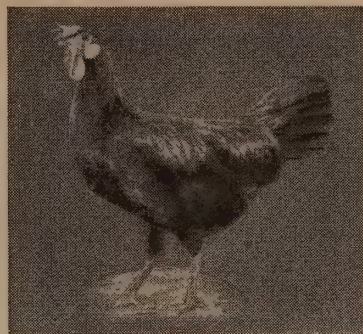
The Poultry Item

ANCONA

Two varieties, single comb and rose comb, identical in every respect except in shape of comb. Plumage color is a lustrous greenish black with certain feathers having a V-shaped white tip. Main tail feathers of female tipped with white. Undercolor, dark slate.

S. C. BLACK MINORCA

Black, with lustrous greenish sheen over surface; free from purple barring. Undercolor, dull black. Beak, black; toes and shanks, dark slate. Minorcas are noted for length of body, large comb and long wattles. Breast prominent and well rounded. The skin of all Minorcas is white.



The Poultry Item

AUSTRALORP

Has the lustrous black plumage color of the Black Orpington, from which breed it was developed. Smaller, more tightly feathered and has been bred as an egg producer. Rather long back and good body depth. The black is the only variety.

JERSEY BLACK GIANT

Largest of the American breeds. Plumage black with greenish sheen. Undercolor slate, approaching white at the skin. Beak, black shading to yellow toward tip. Shanks black, with yellow on under surface of feet and toes.





FEEDSTUFFS



WEIGHT OF VARIOUS CONCENTRATES

Feeding Stuff	1 Qt. Weighs (lbs.)	1 Pound Measures (quarts)
Whole Corn.....	1.7	0.6
Corn Meal.....	1.5	0.7
Corn-and-Cob Meal.....	1.4	0.7
Gluten Feed.....	1.3	0.8
Wheat.....	1.9	0.5
Wheat, ground.....	1.7	0.6
Wheat Bran.....	0.5	2.0
Rye.....	1.7	0.6
Rye Bran.....	0.8	1.3
Oats.....	1.0	1.0
Oats, ground.....	0.7	1.4
Barley.....	1.5	0.7
Brewers' Grains, dried.....	0.6	1.7
Buckwheat.....	1.4	0.7
Cottonseed.....	0.8	1.3
Linseed Meal, O. P.....	1.1	0.9
Linseed Meal, N. P.....	0.9	1.1
Beans, Navy.....	1.7	0.6
Cowpeas.....	1.7	0.6
Peas, field.....	2.1	0.5
Soybeans.....	1.8	0.6
Beet Pulp, dried.....	0.6	1.7
Molasses Feed.....	0.8	1.3
Alfalfa Meal.....	0.6	1.7

CROP ROTATION

According to Government statistics, 87.5% of the crop area of the country is devoted to growing five major crops:

COTTON—CORN—WHEAT—OATS—HAY

While there is no one type of rotation that can be used in all sections of the country, flexible rotations are practicable in most sections and on most farms. Tests indicate that we shall have to depend on the cultivation of the soil for at least one third of our wheat, corn, and oats; upon the use of commercial fertilizers, manure, lime and green manure for another third; and upon rotation of crops for the final third.

Crop rotation is destined to become one of the three outstanding factors in providing food for our future population.

By rotating crops you can, without any cash investment, greatly increase the output of your land and reduce acre costs.



C R O P S



READY REFERENCE TABLE FOR VEGETABLE SEED SOWERS

Number of plants thinned or trans- planted (*) for 100 ft.	Apart in Row	Rows Apart	Depth to Cover	Days to "Come Up"
Asparagus roots*..... 100 roots	1 ft.	3 ft.	3 in.	..
Beans, dwarf limas..... 200 plts.	6 in.	2½ ft.	1 in.	6 to 10
Beans, pole..... 33 hills	3 ft.	4 ft.	2 in.	6 to 10
Beans, pole limas..... 33 hills	3 ft.	4 ft.	1 in.	6 to 10
Beets, early and summer..... 300 plts.	4 in.	1 ft.	1 in.	7 to 10
Cabbage, early and summer*..... 67 plts.	1½ ft.	2 ft.	½ in.	6 to 10
Carrot, early and summer*..... 400 plts.	3 in.	1 ft.	½ in.	10 to 15
Corn, sweet early..... 33 hills	3 ft.	3 ft.	1 in.	8 to 10
Corn, sweet, midseason..... 33 hills	3 ft.	4 ft.	1 in.	8 to 10
Cucumber..... 25 hills	4 ft.	4 ft.	½ in.	6 to 8
Lettuce, early curl..... 100 plts.	1 ft.	1½ ft.	¼ in.	6 to 10
Lettuce, early head*..... 100 plts.	1 ft.	1½ ft.	¼ in.	6 to 10
Melon, musk..... 25 hills	4 ft.	4 ft.	¾ in.	6 to 10
Melon, water..... 12 hills	8 ft.	8 ft.	¾ in.	8 to 12
Onion sets*..... 400 plts.	3 in.	1 ft.	¼ in.	6 to 8
Parsnip..... 200 plts.	6 in.	1½ ft.	½ in.	12 to 18
Peas, dwarf early..... 600 plts.	2 in.	2 ft.	2 in.	6 to 10
Potatoes, early*..... 120 plts.	10 in.	3 ft.	4 in.	15 to 25
Potatoes, sweet*..... 100 plts.	1 ft.	3 ft.	..	..
Radish, early round..... 1200 plts.	1 in.	1 ft.	½ in.	4 to 6
Squash, vine..... 12 hills	8 ft.	8 ft.	1 in.	6 to 10
Tomato*..... 33 plts.	3 ft.	3 ft.	½ in.	6 to 10
Turnip, early..... 300 plts.	4 in.	1½ ft.	½ in.	4 to 7

NUMBER OF PLANTS TO AN ACRE

Distance Apart	No. of Plants	Distance Apart	No. of Plants	Distance Apart	No. of Plants
3 x 3 in.	696,960	4 x 4 ft.	2,722	13 x 13 ft.	257
4 x 4 "	392,040	4½ x 4½ "	2,151	14 x 14 "	222
6 x 6 "	174,240	5 x 1 "	8,712	15 x 15 "	193
9 x 9 "	77,440	5 x 2 "	4,356	16 x 16 "	170
1 x 1 ft.	43,560	5 x 3 "	2,904	16½ x 16½ "	160
1½ x 1½ "	19,360	5 x 4 "	2,178	17 x 17 "	150
2 x 1 "	21,780	5 x 5 "	1,742	18 x 18 "	134
2 x 2 "	10,890	5½ x 5½ "	1,417	19 x 19 "	120
2½ x 2½ "	6,960	6 x 6 "	1,210	20 x 20 "	108
3 x 1 "	14,520	6½ x 6½ "	1,031	25 x 25 "	69
3 x 2 "	7,260	7 x 7 "	881	30 x 30 "	48
3 x 3 "	4,840	8 x 8 "	680	33 x 33 "	40
3½ x 3½ "	3,555	9 x 9 "	537	40 x 40 "	27
4 x 1 "	10,890	10 x 10 "	435	50 x 50 "	17
4 x 2 "	5,445	11 x 11 "	360	60 x 60 "	12
4 x 3 "	3,630	12 x 12 "	302	66 x 66 "	9



SPRAYING



APPLE SCHEDULE

Time of Application	Spray Mixtures	Enemy	Dust Mixtures
Delayed Dormant When leaves of blossom buds are out $\frac{1}{4}$ to $\frac{1}{2}$ inch	Lime-sulfur, 11 gallons. Lead arsenate, $2\frac{1}{2}$ lbs.* Nicotine sulfate, $\frac{3}{4}$ pint. Water to make 100 gals.	Scale Blister mite Bud moth Leaf roller Case-bearers Aphids	No satisfactory dust for scale or blister mite. *Rosy aphid has not been so efficiently combated with dust as with spray, and it is not certain that dusting will afford adequate protection. For aphids alone, 90-10 sulfur-lead-arsenate dust† with 2% nicotine appears to be the best mixture.
Pre-blossom When blossoms show pink, or earlier if a rainy period threatens	Lime-sulfur, $2\frac{1}{2}$ gals. Lead arsenate, $2\frac{1}{2}$ lbs.* Water to make 100 gals.	Scab Green fruit worms Bud moth Leaf roller Case-bearers	Apply 90-10 sulfur-lead-arsenate dust.† If conditions are favorable for a bad outbreak of scab, spray as much as possible, using dust to complete the operation on time.
Calyx When the last of the petals are falling	Lime-sulfur, $2\frac{1}{2}$ gals. Lead arsenate, $2\frac{1}{2}$ lbs.* Nicotine sulfate, 1 pt. Water to make 100 gals.	Scab Codling moth Green fruit worms Bud moth Curculio Lesser apple worm Redbugs	Apply 90-10 sulfur-lead-arsenate dust.† For red bugs, use 90-10 dust with 2% nicotine. If conditions are favorable for destructive outbreak of scab, spray as much of orchard as possible, using dust in supplementary capacity.
Later Sprays To be determined by weather conditions and control of scab	Lime-sulfur, $2\frac{1}{2}$ gals. Lead arsenate, $2\frac{1}{2}$ lbs.* Water to make 100 gals.	Scab Codling moth Curculio Lesser apple worm Apple maggot	Later applications with 90-10 sulfur-lead-arsenate dust.† During prolonged rainy periods it is advisable to make applications of dust at shorter intervals than indicated for spray mixtures. Merits of dusting in controlling apple maggot not definitely established.
At least one application 3-4 weeks after petals fall and another 10 weeks after petals fall	Bordeaux mixture	Leaf spot Sooty blotch	
3-4 applications at 2-3 week intervals beginning 2 weeks after petals fall	Bordeaux mixture	Blotch (not sooty blotch) in South and Middle West	
4 applications at 2-3 week intervals beginning 6 weeks after petals fall	Bordeaux mixture	Bitter rot in Southern orchards	

* The amount of lead arsenate should be doubled if the paste form is used.

† Copper lime dust may cause russetting, especially at the calyx application. At this time use spray or 90-10 sulfur-lead-arsenate dust.

PEACH SCHEDULE

Time of Application	Spray Mixtures	Enemy	Dust Mixtures
Late fall or early spring before buds swell	If scale is abundant, use lime-sulfur, 11 gallons. Water to make 100 gals. If there is no scale, use lime-sulfur, $6\frac{1}{2}$ gals. Water to make 100 gals.	San José scale Leaf curl Leaf curl	Dust not advised.
When blossoms show pink	Self-boiled lime-sulfur, 8-8-50	Blossom blight Brown rot	Apply 95-5 sulfur-lead-arsenate dust. Control of blossom blight by spraying or dusting is uncertain.
When shucks are falling	Self-boiled lime-sulfur, 8-8-50 And arsenate of lead, 3* pounds in 100 gallons	Brown rot Scab Curculio	Apply 90-10 sulfur-lead-arsenate dust.
2-3 weeks after shucks fall	Self-boiled lime-sulfur, 8-8-50	Brown rot Scab	Apply 95-5 sulfur-lead-arsenate dust.
Spray: 4 weeks before fruit ripens. Dust: 2 weeks before or even later	Self-boiled lime-sulfur, 8-8-50	Brown rot Scab	Apply 95-5 sulfur-lead-arsenate dust.



SPRAYING



PEARS

Spray first with concentrated Lime-Sulfur spray (1 gal. of concentrate diluted with approximately 8 gals. water). Then spray four times with a solution diluted with 33-35 gals. water to 1 gal. of Concentrated Lime-Sulfur spray.

THE SCHEDULE

- | | | | |
|------|---|------|------------------------------------|
| 1st. | Dormant | 4th. | Two weeks after petals fall* |
| 2nd. | When blossom buds separate in the cluster | 5th. | Emergency spray for psylla nymphs† |
| 3rd. | Just after petals have fallen* | | |

CHERRIES

Spray first with Concentrated Lime-Sulfur spray (1 gal. concentrate diluted with 8 gals. water) and then four times with Dry-Mix or Self-Boiled Lime-Sulfur spray or 2½ gals. of Concentrated Lime-Sulfur solution to 100 gals. of water, as follows:

THE SCHEDULE

- | | | | |
|------|--|------|-------------------------------|
| 1st. | In the late dormant season or as buds begin to swell*† | 3rd. | When shucks are dropped* |
| 2nd. | When petals fall*† | 4th. | Just before cherries turn red |
| | | 5th. | After picking |

* For the control of chewing insects add 3 lbs. of Powdered Arsenate of Lead to 100 gals. of the mixture.

† For the control of sucking insects add 1 pint of Nicotine Sulfate to 100 gals. of the mixture.

SPRAYS FOR THE GRAPE

1. Shortly before the blossoms open: Bordeaux Mixture (3-3-50), for mildew and black-rot. Add 3 lbs. Lead Arsenate paste (1½ lbs. powder) to 50 gals. if flea-beetles or curculio are prevalent.

2. Just after fruit is set: Materials and pests as in No. 1, but especially to control berry-moth larvae and root-worm beetles.

3. 10-14 days after No. 2. Same materials as in No. 1 for rot, mildew, berry-moth and root-worm. For leaf hopper, add tobacco extract (40% nicotine sulfate), ¼ to ½ pint to 50 gallons (1 teaspoonful to 3 gals.) and apply so as to hit the young before they can fly.

4. If berry-moth, mildew, or rot is serious, repeat Bordeaux and arsenate in two to three weeks.

POTATOES

Demonstration tests on 46 farms in Pennsylvania showed a gain of 166.7 bushels per acre of potatoes, because of spraying. Pennsylvania State College suggests spraying potatoes begin before the appearance of flea-beetles and should continue at ten-day intervals until the vines are dead. Begin spraying before trouble develops—spraying is a preventative, not a cure.

STORED GRAIN

It will pay you to harvest grain crops as soon as they have matured, and to fumigate promptly to kill any stored-grain insects. Fumigation is most satisfactory and economical when done in tight cribs or bins. Many farmers sell newly harvested grain to avoid loss from insect damage, when they might treat it themselves at slight cost and get better prices later. Get Farmer's Bulletin No. 1483 from your County Agent and see how you can protect your stored-grain crops.



C R O P S



RATE OF SEEDING AND WEIGHT PER BUSHEL OF FARM CROPS

Crop	Rate of Seed- ing Per Acre	Weight Per Bushel
Alfalfa.....	10-12 lbs.	60 lbs.
Barley.....	7-10 pks.	48 lbs.
Beans (field).....	2- 5 pks.	60 lbs.
Beets.....	..	60 lbs.
Buckwheat.....	3- 5 pks.	50 lbs.
Clover, red.....	8-10 lbs.	60 lbs.
Clover, alsike.....	4- 6 lbs.	60 lbs.
Clover, white, in mixtures.....	2- 5 lbs.	60 lbs.
Clover, mammoth.....	8-10 lbs.	60 lbs.
Clover, sweet.....	10 lbs.	60 lbs.
Corn, broom.....	4- 6 lbs.	45 lbs.
Corn, shelled.....	6-10 lbs.	56 lbs.
Corn on cob.....	..	68 lbs.
Cotton.....	1- 3 bu.	32 lbs.
Cowpeas, drilled solid.....	6- 8 pks.	60 lbs.
Cucumbers.....	..	48 lbs.
Emmer.....	8-10 pks.	40 lbs.
Grass, blue.....	15-20 lbs.	14-32 lbs.
Grass, orchard.....	15-25 lbs.	14-24 lbs.
Grass, red top.....	10-15 lbs.	14-40 lbs.
Grass, timothy.....	4-10 lbs.	45 lbs.
Kafir (drills).....	3- 6 lbs.	50-60 lbs.
Kafir (for fodder).....	10-12 lbs.	50-60 lbs.
Lespedeza (Japan. Clover).....	20-25 lbs.	25 lbs.
Millet, for hay.....	40-50 lbs.	50 lbs.
Milo.....	5 lbs.	50-60 lbs.
Oats.....	8-10 pks.	32 lbs.
Onion Seed.....	5- 6 lbs.	56 lbs.
Parsnips.....	..	50 lbs.
Peas, alone.....	8-12 pks.	60 lbs.
Peas and Oats.....	6 pks. of ea.	..
Potatoes.....	10-15 bu.	60 lbs.
Potatoes, sweet.....	..	50 lbs.
Rape, solid.....	5- 8 lbs.	60 lbs.
Rye.....	6- 8 pks.	56 lbs.
Sorghum.....	8-15 lbs.	50 lbs.
Soy beans, drilled solid.....	6- 8 pks.	60 lbs.
Soy beans, in rows.....	2- 3 pks.	60 lbs.
Soy beans, planted with corn.....	1/2 pk.	60 lbs.
Sudan Grass (drills).....	15-30 lbs.	..
Sugar Beets.....	6- 8 lbs.	..
Tomatoes.....	..	56 lbs.
Turnips.....	..	55 lbs.
Vetch, hairy, with grain.....	10-20 lbs.	60 lbs.
Wheat, winter.....	6- 8 pks.	60 lbs.
Wheat, spring.....	6 pks.	60 lbs.



CONSTRUCTION



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PLAIN CONCRETE FOR FARM USE

The following concrete mixtures are recommended for use on the farm.

RICH MIXTURE

Used for concrete subject to high stresses or where exceptional water-tightness and resistance to abrasion are desired:

1 part Portland Cement
1½ parts Sand
3 parts Gravel

STANDARD MIXTURE

Used generally for reinforced concrete and water-tight work:

1 part Portland Cement
2 parts Sand
4 parts Gravel

MEDIUM MIXTURE

Used for plain concrete of moderate strength:

1 part Portland Cement
3 parts Sand
5 parts Gravel

All three materials must be measured by volume, using the same unit. The cubic foot is a convenient measure, because a sack of cement weighing 94 pounds is considered to contain 1 cubic foot.

When the coarse aggregate (gravel, etc.) is omitted, the mixture is generally spoken of as mortar and the proportions are indicated, 1: 2, meaning 1 part cement and 2 parts sand. Mortar is used for plastering, stucco, top coats of floors and for laying masonry.

QUANTITIES OF CEMENT MORTAR FOR BRICK AND HOLLOW TILE WORK

The following table shows the amount of cement and sand required for laying brick and tile for joints of average 3/8" thickness:

Substance	Barrels Cement Per 1000	Cu. Yds. Sand Per 1000
Common Brick.....	1½	5/8
3 x 12 Hollow Tile.....	4¾	2⅛
6 x 12 Hollow Tile.....	6½	2⅞
8 x 12 Hollow Tile.....	7½	3⅛



PRESERVATIVE TREATMENT OF FARM TIMBERS

Wood used on farms and exposed to decay probably totals several billion board feet annually. For fence posts, building foundations, windmill frames, shingles, silos, vine stakes, and small buildings, durability of the wood is of great importance.

In a very wet or very dry location a post will last longer than where the ground is simply damp or alternately wet and dry. It will last better in a compact, clayey soil than in a loose sandy soil.

Decay is the result of action of certain low forms of plant life called fungi, which have four requirements for growth: moisture, air, favorable temperature, food.

Certain substances in the wood form the food supply of fungi and the most effective way to prevent decay is to poison the food supply by means of a preservative.

There are six important requirements for a preservative for general use. It should be safe to use; it should be reasonably cheap; it should penetrate wood readily; it should not be corrosive to metal; it should not evaporate or wash out of the wood easily; it should be poisonous to fungi.

Coal-tar creosote is a brownish-black heavy oil in general use for preserving fence posts and other farm timber. It is considered about the most effective against decay.

USEFUL INFORMATION FOR FARM BUILDING

One thousand shingles, laid four inch to the weather, will cover one hundred square feet of surface and five lbs. of shingle nails will fasten them on.

One-fifth more siding and flooring is needed than the number of square feet of surface to be covered, because of the lap in siding and flooring.

One thousand laths will cover seventy yards of surface and eleven pounds of lath nails will nail them on.

Eight bushels of good lime, sixteen bushels of sand and one bushel of hair will make enough good mortar to plaster 100 sq. yards.

One cord of stone, three bushels of lime and a cu. yard of sand will lay one hundred cubic feet of wall.

Cement, one bushel, and sand, two bushels, will cover $3\frac{1}{2}$ sq. yards one inch thick; $4\frac{1}{2}$ sq. yards $\frac{3}{4}$ " thick, and $6\frac{3}{4}$ sq. yards $\frac{1}{2}$ " thick.

One bushel of cement and one bushel of sand will cover $2\frac{1}{4}$ sq. yards one inch thick; 3 sq. yds. $\frac{3}{4}$ " thick, and $4\frac{1}{2}$ sq. yards $\frac{1}{2}$ " thick.



CONSTRUCTION



WEIGHTS OF VARIOUS MATERIALS

Substance	Weight (lbs. per Cu. Ft.)	Substance	Weight (lbs. per Cu. Ft.)
<i>Ashlar Masonry:</i>		<i>Earth, etc., Excavated:</i>	
Limestone, Marble.....	165	Clay, dry.....	63
Sandstone, Bluestone.....	140	Clay, damp, plastic.....	110
<i>Brick Masonry:</i>		Earth, dry, loose.....	76
Pressed Brick.....	140	Earth, moist, loose.....	78
Common Brick.....	120	Earth, mud, packed.....	115
Soft Brick.....	100	Sand, gravel, dry, loose.....	90-105
<i>Concrete Masonry:</i>		<i>Timber, U. S., Seasoned:</i>	
Cement, stone, sand.....	144	Cedar, white, red.....	22
Cement, slag, etc.....	130	Oak, red, black; Chestnut.....	41
Cement, cinder, etc.....	100	Oak, white; Locust.....	46
<i>Building Materials:</i>		Walnut, black.....	38
Ashes, cinders.....	40-45	Walnut, white; Pine, white.....	26
Cement, Portland, loose.....	90	Poplar, Red Pine, Cypress.....	30
Cement, Portland, set.....	183	Hickory.....	49
Lime, gypsum, loose.....	53-64	Maple, hard.....	43
Mortar, set.....	103	Maple, white.....	33
		Hemlock.....	29
		Pine, yellow, short-leaf.....	38
		Spruce, white, black.....	27

TABLE OF BOARD FEET FOR VARIOUS SIZES OF LUMBER

Size of Timber in Inches	Length of Piece in Feet				
	10	12	14	16	18
1 x 2	1 $\frac{2}{3}$	2	2 $\frac{1}{3}$	2 $\frac{2}{3}$	3
1 x 5	4 $\frac{1}{6}$	5	5 $\frac{5}{6}$	6 $\frac{2}{3}$	7 $\frac{1}{2}$
1 x 12	10	12	14	16	18
1 x 16	13 $\frac{1}{3}$	16	18 $\frac{2}{3}$	21 $\frac{1}{3}$	24
2 x 4	6 $\frac{2}{3}$	8	9 $\frac{1}{3}$	10 $\frac{2}{3}$	12
2 x 10	16 $\frac{2}{3}$	20	23 $\frac{1}{3}$	26 $\frac{2}{3}$	30
2 x 14	23 $\frac{1}{3}$	28	32 $\frac{2}{3}$	37 $\frac{1}{3}$	42
3 x 8	20	24	28	32	36
3 x 12	30	36	42	48	54
3 x 16	40	48	56	64	72
4 x 4	13 $\frac{1}{3}$	16	18 $\frac{2}{3}$	21 $\frac{1}{3}$	24
4 x 10	33 $\frac{1}{3}$	40	46 $\frac{2}{3}$	53 $\frac{1}{3}$	60
4 x 12	40	48	56	64	72
6 x 6	30	36	42	48	54
6 x 10	50	60	70	80	90
8 x 8	53 $\frac{1}{3}$	64	74 $\frac{2}{3}$	85 $\frac{1}{3}$	96
8 x 12	80	96	112	128	144



PAINTING

While paint greatly improves the looks of a building or a piece of farm machinery, its chief value is to preserve them from weather effects. Painting at regular intervals is the cheapest way to keep buildings and implements in good condition. Don't put off painting too long. Once wood begins to rot or iron to rust, this will continue even after paint has been put on. Outside painting can be done whenever the surfaces are dry and the weather is not damp, frosty, or freezing. Temperatures between 60 and 80 degrees F. give the best results. You can paint in heated buildings at any time. Cool, dry weather is best for calcimining.

SPREADING RATES FOR AVERAGE CONDITIONS

Coating Material	Character of Surface	Surface Covered by 1 Gallon		
		1 Coat (sq. ft.)	2 Coats (sq. ft.)	3 Coats (sq. ft.)
Oil Paint (gloss)	Smooth Wood	600	325	225
	Rough Wood	350	200	135
	Metal	700	340	230
	Plaster	450	250	175
	Brick, Cement	350	200	150
	Stucco	200	100	..
Oil Paint (flat)	Smooth Wood	500	275	200
	Plaster	400	225	160
	Brick, Cement	300	175	125
	Stucco	150	75	..
Enamel	Smooth, painted with undercoats	500	250	..
Varnish (interior finishing)	Smooth Wood	450	250	175
Calcimine (5 lbs. powder)	Plaster	400	..	..
Whitewash (4-5 lbs. hydrated lime)	Wood	250	..	..
	Brick	200	..	..
	Plaster	300	..	..

Shingle Stain: $2\frac{1}{2}$ gals. per 1000; dipped two-thirds of length.



PRECAUTIONS WHEN PAINTING

Do not use white-lead paints in places where they will come in contact with drinking water, silage, or food.

Do not inhale the dust when scraping or sand-papering surfaces coated with lead paints. Cover mouth and nose with loose cotton enclosed in several thicknesses of cheesecloth.

Keep skin free from paint, and clean hands thoroughly before eating, using oil or grease first, followed by soap and water. Handling food with hands covered with lead paint is dangerous.

When painting or varnishing indoors, keep the windows open to permit free circulation of air.

Keep paints, varnishes, oils and thinners away from heat and flames; they easily catch fire.

Get rid of all rags or waste containing paint, varnish or oil as they may start a quick fire through spontaneous combustion.

PLUMBING REPAIRS ON THE FARM

FAUCETS: Loose or rough-edged washers cause vibrating or rattling noises; worn washers cause leakage. Moderate force on the handle of a faucet should stop all flow and drip. Installing a new washer is easy. Shut off the water; unscrew the cap nut; grasp the faucet handle and unscrew from body. Unscrew washer and replace with new one. Leather is good for cold water washers; rubber is better for hot water.

CLOGGED PIPES: Rust and dirt may be removed as follows: Tie a piece of small, stout cord to each end of a 2-foot length of small chain—each piece of cord to be a bit longer than the length of pipe to be cleaned. Attach the free end of one of the cords to a stiff steel wire; push wire and cord through the pipe; pull chain to and fro, then thoroughly flush pipe with clean water under strong pressure.

THAWING PIPES: When thawing a water pipe work towards the supply, opening a faucet to show when flow starts. Thaw a waste or sewer pipe from lower end upward so water may drain away. Boiling water or hot cloths is simple and effective. Do not use an open flame.

PROTECTION OF PIPES: All pipes should be safe from frost. Small water pipes freeze quicker than waste pipes and sewers which carry water more or less warmed. In New York, lay small water pipes 4 to 6 feet deep; in New Jersey, $3\frac{1}{2}$ to $4\frac{1}{2}$ feet, and in Ohio and Pennsylvania, $3\frac{1}{2}$ to $5\frac{1}{2}$ feet.

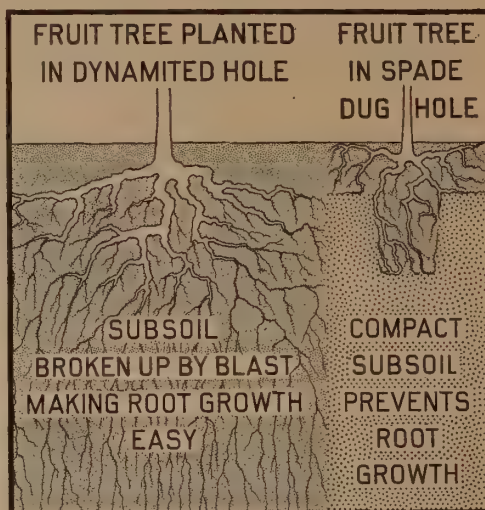


USE OF EXPLOSIVES ON THE FARM

1. PLANTING OR REJUVENATING ORCHARDS

After thirty years of planting trees in blasted ground, and observations by orchardists employing the dynamite system, the following advantages are well established:

1. Less labor in preparing holes.
2. A wider, deeper, richer feeding ground for the roots.
3. More absorptive subsoil ensuring a greater storage of moisture.
4. Better root growth and consequent earlier maturity of trees.
5. Quicker return on investment because of faster development of trees.
6. Partial insurance against early mortality of trees and loss of time, labor and capital invested.



2. DITCHING

For making open ditches, straightening streams and cleaning out old ditches, dynamite is economical and effective when properly used. Ditching with dynamite has become one of the modern methods for providing an efficient drainage system at a most decided reduction in time required and cost of project. Improvement of the drainage system will yield a profitable return, making acreage available for crops and disposing of stagnant pools which are a menace to health.

3. FIELD CLEARING

Farm machinery cannot work in fields cluttered with stumps or boulders. Partly cleared fields require more time and labor to cultivate, limit the use of machines and reduce the yield per acre. The cleared acre is the profit maker. Explosives have been developed which are especially adapted for land clearing, and methods have been perfected for using them with efficiency, economy and safety. Today, farmers are turning to explosives as a source of power for removing stumps and boulders in the same way as they do to tractors or electricity for performing many of the tasks that arise on the farm or in the home.



GULLIES

The greatest damage caused by gullies is the carrying away of fertile soil. Other bad features are:

They cannot be readily crossed by teams and farm implements.

They grow rapidly if unchecked, and often extend through a farmstead undermining and necessitating the removal of farm buildings.

They make public highways unsafe.

They extend across farm roads, undermine culverts, etc., often making bridge building necessary.

They cause the silting up of reservoirs and natural channels, and of channels dredged at great cost.

They carry sand and deposit it on rich bottom land making it unproductive.

They give a farm an unsightly appearance, reducing its market value; they endanger the life of livestock grazing near the edges of undermined banks.

Don't let gullies get a start—check them early and you'll save much valuable farm land.

WINDBREAKS

Windbreaks are a farm asset. They tend to prevent the soil from drying out quickly and they protect grain and orchards from injury by the wind. A belt of trees by the farm buildings protects them from extreme winter cold and summer heat and makes the farm a pleasanter place to live.

Detailed information concerning yields, crop benefits and other aspects of windbreak planting can be secured from Forest Service Bulletin 86.

WATER REQUIREMENTS OF FARMS

This table shows the number of gallons required per person or animal for each 24 hours:

Water Use	Quantity Gals.
Domestic purposes, 1 pump at kitchen sink.....	4 to 8
Domestic purposes, 1 faucet at kitchen sink.....	7 to 15
Domestic purposes, running hot and cold water in kitchen, bathroom and laundry.....	20 to 25
Sprinkling and cooling purposes, outdoor washing, leakage, etc.....	15
Average daily consumption, modern home.....	40
Maximum daily consumption, modern home.....	100
Horse, Mule or Cow.....	12
Sheep or Hog.....	1



LIGHTNING

The Weather Bureau recommends the protection of all important farm buildings where thunderstorms are frequent and intense, particularly where human or valuable animal life is involved. Some people say that lightning conductors "draw lightning," making their use undesirable. A stroke of lightning near a rodged building would likely be diverted to the conductors and pass harmlessly to the ground. If the building were unrodged, the stroke would probably cause damage.

In choosing the type of equipment for lightning protection consider:

The value of the building

The nature and value of its contents

The frequency and intensity of thunderstorms

Whether protection of human or animal life is involved

What sum of money is available for protective equipment

For general utility in practically all conditions the copper-cable installation is believed to be preferable, with a carefully jointed and heavily galvanized steel rod next best. There is usually not much difference in the cost of installing the two kinds. It should be possible to install iron-pipe conductor and fittings for about half the cost of the more permanent copper and star-section rods, and good galvanized pipe can be obtained almost anywhere.

FARM INVENTORY

Do you know accurately your net financial worth? Do you know how your investment in farm property is distributed? Do you know (even approximately) how much you are getting ahead or falling back, each year? You can have these and other facts of importance by preparing a list of farm property and farm debts every year.

Property lists, or inventories, are not difficult to make; the farmer, as a business man, should know where he is going. Detailed information on Farm Inventories is available to you (with sample forms) from U. S. D. of A. Ask for Bulletin 1182.





ESTIMATING LIFE OF FARM IMPLEMENTS

While no exact rules can be given to cover all factors in the useful life of farm implements, the following figures, from a survey made in Western New York, may be useful as a guide:

Implement	Average Years of Life	Average Acres Covered per Year
Walking Plow.....	11.7	32.9
Springtooth Harrow.....	11.0	71.1
Spiketooth Harrow.....	14.0	46.3
Disk Harrow.....	13.0	35.2
Land Roller.....	16.0	65.9
Grain Drill.....	16.4	46.3
Corn Planter, 1-row.....	11.7	4.1
Corn Planter, 2-row.....	11.0	8.2
Cultivator, 1-row.....	14.0	16.9
Cultivator, 2-row.....	12.5	39.3
Mower.....	14.8	28.0
Hay Rake.....	14.5	43.0
Hay Tedder.....	14.0	21.6
Bean Harvester.....	12.9	16.9
Grain Binder.....	15.4	35.2
Corn Binder.....	10.8	21.1





DRY CELLARS

Many wet cellars might be dry had more attention been given to their location and construction and to grading the earth around them to shed water quickly. The simplest and surest method of avoiding ground-water troubles is by gravity drainage of the site.

Many damp cellars can easily be made drier by better window ventilation.

Water-tight construction and waterproofing and damp-proofing methods require good materials, but the vital thing is thorough workmanship in every detail.

In selecting the site for a new cellar, mind these points and you'll avoid many mistakes:

1. Moderately elevated so that a fall in at least one direction is obtained.
2. The soil and sub-soil should be open and porous to admit air and water readily; sands, gravels and loams.
3. The site should have good, deep, natural drainage.
4. Don't choose a site until you decide on the source of your domestic water supply; making sure of its purity and abundance. Also decide where waste, sewage, etc., is to go.

PURITY OF FARM WATERS

Purity of the water supply should be the first consideration of the farmer. Disease germs cannot be seen: there may be thousands in a drop of water or in a particle of waste matter the size of a pinhead.

Surveys indicate that three out of four farm water supplies are unsafe. Streams, ponds, irrigation ditches, and other surface supplies are sure to receive pollution, either directly or from surface wash.

Tight well platforms and casings, clean grounds, and wide separation of the well from probable channels of impure drainage are the greatest safeguards.

Any suspicious water should be rejected or disinfected. Disinfection (destruction of disease germs) of drinking water by home methods should be considered an emergency measure.

Until your town, county or State board of health can help you determine the purity of your water supply, you should stop using the water for drinking and cooking.



FIRE PREVENTION



FIRE PREVENTION

Every minute of the day and night, 365 days a year, \$950 worth of property goes up in smoke throughout the nation. Most of these fires are preventable. The principal causes of fires in homes are: careless use of matches and cigarettes, burning of refuse, defective heating equipment and chimneys, defective electric wiring, spontaneous combustion, careless handling of gasoline, kerosene, etc., open lights, putting hot ashes in wooden boxes.

Here are some fire prevention rules:

Don't store clothing with matches in the pockets nor hang near a chimney.

Use a wire container for rubbish fires; keep them away from buildings; don't light them on windy days.

Use metal wastebaskets.

Use safety matches; be sure a match is out before you throw it away; don't carry them loose; never light a match in a closet or garage—use electric flashlight.

Put out every candle, lamp or gas light before leaving house.

Place stoves, furnaces and pipes far enough from walls to prevent overheating woodwork.

Never pour kerosene into coal or wood stove even when fire is out.

Don't hang curtains or clothing too near stove.

Never pour water on burning fat; use earth, sand, flour, salt or a metal cover.

Keep oily cloths in a metal container with cover.

Put out every outdoor fire before you leave it.

Thaw frozen pipes with hot water—not an open flame.

Oil and gasoline containers should be stored outside the house.

Never open a gasoline can in a house or near an open flame, etc.

If your clothing should catch fire, *don't run!* Lie down and wrap up in a rug, overcoat, blanket, etc. . . . if nothing is handy, roll slowly while beating the flames with your hands.

FIRE-PROTECTIVE APPARATUS

Get rid of all the fire hazards you can, but be ready to fight fires in case they do start. Ladders, axes, chemical extinguishers, water pails and barrels or tanks fitted with pumps should be available on every farm. A pressure system is a desirable water supply. Rural communities should have adequate motorized fire apparatus and trained volunteer fire departments. The Department of Agriculture will, on request, furnish available information on prevention of farm fires.



P E S T S



TERMITES

When you find small, blackish, white-winged “ants” flying in your house in spring and fall, don’t think they are outdoor ants—and forget about them. They may be termites or “white ants” and possibly are destroying the woodwork of your home. Get Leaflet No. 31 from the U. S. Department of Agriculture and follow its directions for control of termites.

FLEAS

There are about 500 species, but the human flea, the dog flea, the cat flea, the stick-tight flea, the hen flea and the rat fleas (which carry bubonic plague) are the principal species that annoy man and beast. The main steps in control are: get rid of the breeding places; destroy fleas on infested animals.

All animals and poultry should be prevented from going beneath buildings, the vegetable and animal matter carefully cleaned up, the infested areas sprayed with creosote oil and the ground where immature fleas are developing covered with salt and thoroughly wet down. Applying derris powder to pet animals or washing them in a comparatively weak solution of saponified creosote or kerosene emulsion will destroy the fleas.

MOSQUITOES

Swamps, ponds and marshes are not the only places which breed mosquitoes. A little rain water in an old tin can, an uncared-for sewer trap or an undrained roof gutter will, if neglected, supply mosquitoes for an entire neighborhood. Some protective liquids which will help keep these pests away for a time are: Spirits of Camphor or Pine Oil rubbed on face and hands; Oil of Pennyroyal and Oil of Citronella.

HOUSE ANTS

Ants go where they find food, and if household supplies are kept in ant-proof containers or in ice boxes, and crumbs, etc., are cleaned up promptly, the ant nuisance will be slight.

PREDATORY ANIMAL AND PEST CONTROL

RATS.—Rat-proof all new buildings. Close all openings through which rats can gain entrance. Remove all shelter for rats. Promptly dispose of all garbage, trash and other waste on which rats can feed. Destroy rats with poisoned baits or traps. Fumigate burrows and hiding places with poisonous gases.

CROWS.—About one-fifth of the crow’s food is insects—including some of the worst pests of the farmer. So it may not be wise to try to exterminate the crow. Some preventive measures to apply when the crow is a nuisance are: Coal tar or other deterrents on seed grain; use frightening devices.



FIRST AID HINTS



SAFETY HINTS

POISONS.—Should be kept locked in a special cabinet with proper labels on each container.

There are three important things to be done in practically every case of poisoning:

1. Empty the stomach of the poison as quickly as possible.
2. Neutralize what cannot be removed, and
3. Counteract the depressing effects of the poison.

To empty the stomach give 1 or 2 glasses of luke-warm water; then induce vomiting by tickling throat with feather or finger. Or, give an emetic such as a tablespoonful of salt to a glass of warm water followed by plenty of warm water; or a teaspoonful of mustard in $\frac{1}{2}$ glass of warm water. Caution: If a corrosive has been swallowed (carbolic acid, lime, lye, caustic soda, etc.), don't try to induce vomiting.

WOUNDS.—First, stop the bleeding. A cut artery bleeds in spurts and jets, a vein flows with little force. Use a tourniquet to stop either. Apply between cut and heart for an artery; on the side farthest from the heart, for a vein.

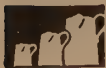
BURNS (Minor).—Cover with gauze soaked in a lotion made from a few teaspoonfuls bicarbonate of soda in glass of water; vaseline, cold cream, sweet oil or Carron oil may also be used.

SHOCK.—Place patient flat with head lower than feet. Keep warm. Give internally plenty of hot, black coffee, or half a teaspoonful aromatic spirits of ammonia. Don't expose patient to cold air, but permit comfortable breathing. Rub limbs towards the heart until doctor comes.

SUNSTROKE.—Call doctor immediately. Take victim to cool place; pour cold water on face and body. Keep him cool.

HOUSEHOLD FIRST-AID KIT

- | | |
|---|---|
| Aromatic spirits of ammonia, 2° | Scissors |
| ounces (rubber cork) | Olive oil, 2 drams |
| Antiseptic gauze, 2 small packages | Epsom salts, 4 ounces |
| Absorbent cotton, $\frac{1}{2}$ pound | Limewater, 2 ounces |
| Roller bandages, 6 (3 large, 3 small) | Mustard, powdered, 2 ounces |
| Iodine swabs, 6 | Glass and spoon |
| Carbolized vaseline or petrolatum, 1 tube | Camel's-hair brush |
| Witch hazel, 2 ounces | Mercurochrome, 2% solution (alternative for iodine) |
| Talcum powder, 1 tin | Adhesive tape |
| Pins, ordinary and safety | |



HANDY FACTS for the FARMER



SILAGE TABLE

Approximate Capacities of Cylindrical Silos in Tons. (Use height of silage after settling two days.)

Depth of Silage Two Days After Filling	Inside Diameter of Silo in Feet					
	10	12	14	16	18	20
Feet	Tons	Tons	Tons	Tons	Tons	Tons
2	2	2	3	4	5	6
4	3	5	7	9	11	13
6	5	8	11	14	17	21
8	8	11	15	20	25	31
10	10	15	20	26	33	41
12	13	19	25	33	42	52
14	16	23	31	41	52	64
15	18	25	34	45	57	70
16	19	28	38	49	62	77
17	21	30	41	53	67	83
18	23	32	44	58	73	90
19	24	35	48	62	79	97
20	26	38	51	67	85	105
21	28	40	55	72	91	112
22	30	43	59	77	97	120
23	32	46	63	82	103	128
24	34	49	66	87	110	135
25	36	52	70	92	116	143
26	38	55	74	97	123	152
27	40	58	79	103	130	160
28	42	61	83	108	137	169
29	44	64	87	114	144	178
30	47	67	91	119	151	187
31	49	70	96	125	158	195
32	51	74	100	131	166	205
33	53	77	105	138	173	214
34	56	80	109	143	181	224
35	58	84	114	149	188	232
36	61	87	118	155	196	242
37	63	90	123	161	204	252
38	66	94	128	167	212	262
39	68	97	133	174	221	272
40	70	101	138	180	229	280

What is left in a silo after part has been used can be estimated as follows:

Find original amount of silage put in silo by referring to table. Find amount of silage that has been used by same method, using as depth the difference between present depth and depth two days after filling. Subtract amount used from original amount. The difference is approximate amount of silage remaining in silo.

Example: A silo 16' in diameter and 32' high was filled so that after settling two days there was 26' of silage. At time inventory was taken there was 12' of silage left. From the table it is seen that 26' of silage in a 16' silo = 97 tons. Since 12' of silage was left, 14' had been fed, and 14' of silage in a 16' silo = 41 tons. Therefore, the bottom 12' of silage in this silo would contain about 56 tons of silage, since 97 tons minus 41 tons = 56 tons (Cornell).



HANDY FACTS *for the* FARMER



SILAGE

The following is the amount of silage usually fed to different kinds of livestock:

Dairy Cattle per 1000 lbs. live weight	36 lbs.
Beef Cattle per 1000 lbs. live weight	30 lbs.
Dairy Cattle, supplementary to pasture	15 lbs.
Sheep per head	2 lbs.

RELATION OF SIZE OF SILO TO LENGTH OF FEEDING PERIOD AND SIZE OF HERD

Number of Cows Consum- ing 40 Pounds of Silage Daily	Feed for 180 Days			Feed for 240 Days		
	Estimated Amount of Silage Consumed	Size of Silo		Estimated Amount of Silage Consumed	Size of Silo	
	(Tons)	Diameter (ft.)	Height (ft.)	(Tons)	Diameter (ft.)	Height (ft.)
10	36	10	25	48	10	31
12	43	10	28	57	10	35
15	54	11	29	72	11	36
20	72	12	32	96	12	39
25	90	13	33	120	13	40
30	108	14	34	144	15	37
35	126	15	34	168	16	38
40	144	16	35	192	17	39
45	162	16	37	216	18	39
50	180	17	37	240	19	39



HANDY FACTS *for the* FARMER



BOARD MEASURE

The unit of measure is the board foot, which is a board one inch thick and one foot square. Lumber is always sold on the basis of 1000 feet board measure (B. M.).

A GOOD FLY SPRAY

A good fly spray for cattle can be made by dissolving $\frac{1}{2}$ pound of fish-oil soap in soft water and bringing to the boiling point. Stir this soap solution into 2 gallons of crude oil and mix thoroughly. For spraying mix one quart of the above solution and one teaspoonful of Blackleaf 40 with one gallon of water.

APPROXIMATE WEIGHTS PER GALLON OF MILK AND CREAM AT VARIOUS TEMPERATURES

Temp. Fahr.	Skim Milk	4% Milk	20% Cream	40% Cream
	(Lbs.)	(Lbs.)	(Lbs.)	(Lbs.)
40°	8.66	8.61	8.54	8.42
60°	8.64	8.59	8.48	8.32
80°	8.62	8.565	8.42	8.23
100°	8.58	8.52	8.37	8.15
120°	8.53	8.475	8.325	8.10
140°	8.48	8.43	8.28	8.05

LIQUID MEASURE TABLE

4 Gills = 1 Pint 4 Quarts = 1 Gallon 2 Barrels = 1 Hogshead
2 Pints = 1 Quart 31½ Gals. = 1 Barrel

AVERAGE CRUDE AND DIGESTIBLE PROTEINS—GRAINS AND ROUGHAGES

	Protein in 100 Pounds			Protein in 100 Pounds	
	Crude	Digestible		Crude	Digestible
Corn	10.1	7.5	Soybean Hay .	16.0	11.7
Oats	12.4	9.7	Mixed Hay . .	8.6	4.0
Barley	11.5	9.0	Timothy Hay .	6.2	3.0
Rye	11.8	9.9	Millet Hay . .	8.8	5.3
Corn and Cob			Corn Stover . .	5.7	2.0
Meal	8.5	6.1	Silage	2.0	1.0-2.0 (very low)
Alfalfa Hay . .	14.9	10.6	Oat Straw . . .	3.6	1.0
Clover Hay . .	12.8	7.6	Wheat Straw .	3.1	0.7



HANDY FACTS *for the* FARMER



TABLE SHOWING NUMBER OF QUARTS OF CREAM TO 100 LBS. MILK

100 Lbs. of 3% Milk make	7.11	quarts of 20% Cream
	5.72	" " 25% "
	4.79	" " 30% "
	4.12	" " 35% "
	3.62	" " 40% "
100 Lbs. of 5% Milk make	11.86	quarts of 20% Cream
	9.54	" " 25% "
	7.98	" " 30% "
	6.87	" " 35% "
	6.04	" " 40% "

TABLE SHOWING HOW MANY QUARTS OF MILK NEEDED TO MAKE ONE QUART OF CREAM

6.54	quarts of 3% Milk will make	1	Quart of 20% Cream
8.13	" " " " " "	1	" " 25% "
9.71	" " " " " "	1	" " 30% "
11.28	" " " " " "	1	" " 35% "
12.84	" " " " " "	1	" " 40% "
3.92	quarts of 5% Milk will make	1	Quart of 20% Cream
4.87	" " " " " "	1	" " 25% "
5.83	" " " " " "	1	" " 30% "
6.77	" " " " " "	1	" " 35% "
7.70	" " " " " "	1	" " 40% "

TO FIND CONTENT OF SILO

Take the square of the radius ($\frac{1}{2}$ the diameter), multiply by 3.1416 by height and you get the cubic foot capacity.

Example: A silo $9\frac{1}{2}$ feet in diameter and 16 feet high would contain about 908 cubic feet. As the average weight of silage is about 33 lbs. per cubic foot, the contents of this silo would be about 13 tons.





HANDY FACTS *for the* FARMER



To find the diameter of a circle multiply circumference by .31831.
To find circumference of a circle, multiply diameter by 3.1416.
Doubling the diameter of a pipe increases its capacity four times.
1 cubic foot of anthracite (hard) coal weighs about 53 pounds.
1 cubic foot of bituminous (soft) coal weighs about 47–50 pounds.
1 horsepower is equivalent to raising 33,000 pounds 1 foot per minute; or 550 pounds, 1 foot per second.

MEASURING HAY

SOUTH DAKOTA METHOD

Rick Stack.—Obtain the number of cubic feet by subtracting the width from the overthrow, dividing the result by 2, multiplying this result by the width and the product by the length.

(The overthrow is the distance in linear feet and inches from the ground on one side of the stack, directly over and opposite to the ground on the other side of the stack.)

Round Stack.—Obtain the number of cubic feet by multiplying the circumference (taken at base of stack) by itself and the product by the height, and divide by 25.

	Cubic Ft. of Hay in a Ton	
	Settled 30 to 60 days	Settled more than 60 days
Clean Alfalfa	512	422
Clean Timothy and Clover	512	422
Clean native blue, joint alkali or salt grass or wheat grass or mixed	422	343

HAY IN MOW

Multiply the length by height by width in yards and divide by 15, if hay is well packed. If hay is shallow or rather loose in mow, divide by 18. These figures should vary from 15 to 18, depending on the packing. Quotient will be approximate number of tons.

QUARTERMASTER METHOD

Add the width of the stack to the overthrow, divide by 4, multiply the result obtained by itself and the product by the length, which gives the number of cubic feet in the stack.

Straw—1,000 cu. ft. = 1 ton.



HANDY FACTS *for the* FARMER



FREQUENTLY USED CONVERSIONS

- 1 cubic foot equals 7.48 gallons
- 1 gallon equals 231 cubic inches
- 1 gallon water weighs 8.355 pounds
- 1 cubic foot water weighs 62.52 pounds
- 1 cubic yard equals 27 cubic feet or 1728 cubic inches
- 1 acre equals 4840 square yards or 43,560 square feet
- 1 mile equals 1760 yards or 5280 feet
- 1 horsepower equals 1.34 kilowatts
- 1 kilowatt equals .746 horsepower
- 1 bushel equals 2150.42 cubic inches

DETERMINING CAPACITIES OF BINS, CRIBS, ETC., IN BUSHELS OF PRODUCTS

Compute cubic feet by multiplying length by width by height for square or oblong bins, or 3.1416 by radius squared by height for cylindrical bins.

Multiply by 4 and divide by 5 to find number of bushels. If corn is in the ear deduct one-third from the result.

NUMBER OF GALLONS IN CIRCULAR TANKS AND WELLS

To find the contents in gallons of circular tanks, square the diameter in feet, multiply by the depth, and then multiply by 5.875 .

AMOUNT OF ICE TO STORE TO COOL MILK

Calculate quantity of milk to be cooled during period. Three lbs. ice is needed to cool 1 lb. milk from 100° F. to 40° F.

$$\frac{\text{Quantity of milk} \times 3}{2000} = \text{tons of ice necessary}$$

Tons of ice required $\times 40$ cu. ft. = total no. cu. ft. or size of ice house necessary. About 1 to $1\frac{1}{2}$ ft. should be added to each dimension of house to allow for packing material—usually sawdust.

NUMBER OF GALLONS IN SQUARE TANKS

To find the number of gallons in any square or oblong tank, multiply number of cubic feet it contains by 7.4805 .



LEGAL POINTERS



It is not safe to have any business dealings with a minor (generally, a person under 21 years of age).

A contract to do anything unlawful cannot be enforced.

Avoid oral contracts—have them written and signed by the parties thereto.

Consult your lawyer or banker before investing money.

Never leave any unfilled blanks in a written instrument.

Auction Sales: All terms should be decided upon and printed in the handbills advertising it. If the owner wants to reserve the right to bid or have bids made for him, it must be definitely stated.

Don't pay money to an agent unless you know he is authorized to make collections.

Never buy personal property where there is doubt as to the seller's title.

A chattel mortgage must be in writing and must be recorded. Also it must conform to the local law.

Make a will.

FARM LEASE CONTRACT

More than 40% of all the farms in the United States were operated by tenants in 1930, while 10.4% were operated by owners renting additional land. It is probable that each year about 2 million lease contracts must be made or renewed.

If you make a farm lease contract it is well to check over the following suggestions:

Was its full meaning understood before it was signed?

Is it so written that its meaning will be clear at any later time?

Is it fair to both parties?

Does it give the tenant a reasonable opportunity to make a comfortable living and to get ahead?

Does it require proper and conservative care of the premises leased?

Are all desired reservations to the lease made?

Are the things stated which each party is to do and to contribute?

Does it make clear the rights and privileges of each party?

Does it define the relationship between landlord and tenant and provide for the settlement of differences of opinions?

Does it contain a statement of the procedure to be followed when the relationship of landlord and tenant is to be terminated?

Does it contain the following essentials to a legally complete lease?

1. The date it was made.
2. The names and the final signatures of the contracting parties.
3. The period for which the lease is to run.
4. A description of the property leased.
5. An agreement in respect to the amount of rent to be paid and the time when and the place where it is to be paid.



ODD BITS

from Here and There



A bushel of wheat usually weighs 60 pounds and can be made into 42 pounds of flour, 8 $\frac{3}{8}$ pounds of bran, 9 $\frac{2}{5}$ pounds of shorts.

A recent count shows that 58% of all the farms in the U. S. have automobiles, 13.4% have motor trucks and 13.3% have tractors.

A little over 83 years ago people began to eat tomatoes. Before that time it was generally believed that tomatoes were poisonous.

What is Mulching? Hawaiian sugar planters used to allow leaves and tops to remain between the rows of growing sugar cane. This conserved the moisture and kept down weeds. Later, a cheap grade of asphalt paper was used for mulching sugar cane and also pine-apples. In this country, experiments with mulching are said to have increased vegetable production in some cases from 30 to 500 per cent. Twelve days after a rain, soil protected with mulch paper is said to contain 20 per cent more moisture than unmulched soil nearby.

To Keep Paint Brushes Workable: As soon as you've finished painting remove excess paint by pressing brush in turpentine several times. Then wash well in warm water and use plenty of soap. Suspend the brush, bristles down, till dry. Don't stand brush on bristles between jobs.

Removing Hardened Paint from Brushes: Oil paints and varnishes containing much linseed oil cannot be successfully removed after they have dried on a brush. The bristles can sometimes be separated by soaking the brush in raw linseed oil for a day or two and then washing with hot turpentine. Soaking a brush for 12 to 24 hours in a warm solution containing a pound of sal soda in 3 pints of water frequently softens it so that it may be washed with soap and water. Some painters believe that a mixture of soda ash or sal soda with borax or trisodium phosphate is less harmful. Lye or caustic soda ruins the bristles.

Removing Paint from Glass: Mix three parts of American potash to one part of unslaked lime. Lay this on with a stick and let it remain for some time. Paint spots may also be removed by rubbing them with very hot, sharp vinegar. The milled edge of a silver coin will also remove small paint spots on glass.

The average temperature of a normal adult is 98.6 degrees F.; the average normal pulse is 72 beats per minute; the average normal respiration varies from 16 to 18 times per minute.



ODD BITS

from Here and There



House Flies: Most flies die in winter, but some find places of warmth and protection, live through the cold season and start new generations in the spring. If these few could be killed, the millions that follow them would not be born. This idea is the basis for the campaign for killing flies in the spring. One fly killed then may mean millions fewer in August.

Introduction of the Broom: Records found in a diary in North Hadley, Mass., show that Benjamin Franklin introduced the broom into America. A woman acquaintance of Franklin sent him from India a whiskbroom with broom corn seeds on the stalks. He planted the seed and passed the stalks among his friends, making round brooms by winding thread around several stalks.

Population Increase: It is estimated that the population increases at the rate of one person every 36 seconds. There is a birth about every 14 seconds and one death every 22 seconds. Immigration and emigration figures affect the rate slightly.

In the 1930 census there were 3964 persons reported aged 100 years or more. Of these 1,180 were white, 2467 were negroes, and 317 were of other races. In all races it was shown that women outnumber men in reaching an advanced age.

Origin of Daylight Saving: Benjamin Franklin first suggested this in April, 1784, in a contribution to the Journal de Paris, of France.

Coldest Inhabited Spot: Verkhoyansk in the province of Yakutsk, Siberia, is believed to be the coldest inhabited spot in the world. It is known as the Pole of Cold and temperatures as low as 90 degrees below zero F. have been recorded.

In the surveyor's measure, 1 link equals 7.92 inches.

In measuring a horse, 1 hand equals 4 inches.

A person is taller when lying down. Usually the difference is slight but as much as an inch difference has been noted.



ODD BITS

from Here and There



Snakes: Snakes do not breathe under water but it is possible for a swimming snake to strike a swimming man. It is said that the cottonmouth snake strikes in the water. There are species of sea snakes that strike only when in water.

Thousands of tons of iron shot out of the sky some years ago when a falling meteorite crashed to earth in Yenosei province in Central Siberia. It exploded as it neared the earth and illuminated the country for nearly 500 miles. The heat from this body could be felt for a distance of 300 miles. It was the largest falling star in history. If it had struck New York city every building and subway would have been destroyed and every bit of life wiped out.

Water is the greatest solvent. It dissolves to a greater or lesser extent almost every substance with which it comes into contact.

Strands of the web of spiders are used for cross lines in microscopes, range-finders, and other exacting instruments. The web is wound on a card like thread.

Damage by rats to property and produce in the United States amounts to about \$200,000,000 annually. Rats affect a larger percentage of the population than any other pest in existence.

Eradication of Bovine T.B.: The Bureau of Animal Industry says that the eradication of tuberculosis in cattle was started in Pennsylvania in 1892 and 1893. The general campaign was not started until 1917, in which campaign fifteen or twenty states participated.

A boy between 9 and 13 years of age requires just as much food as a man, and between the ages of 14 and 19 he will require more than a man does.

Hornets: Hornets should not be disturbed nor destroyed unless they are actually annoying members of the family. If their nest is under the eaves on the outside of the house and no one is being stung by them, they should be left alone, since they are very valuable in destroying injurious garden insect pests.

FARM BULLETINS

The following list shows some of the Farmers' Bulletins and Leaflets of the United States Department of Agriculture. Ask your Congressman or County Agent to get the ones you want.

- | | | |
|--|---|---|
| 157 Propagation of plants. | 750 Roses for the home. | 1003 How to control billbugs. |
| 181 Pruning. | 752 Fall army worm. | 1006 Wheat jointworm. |
| 218 School gardens. | 754 The bedbug. | 1012 Outdoor wintering of bees. |
| 232 Okra. | 756 Culture of rye in the East. | 1014 Wintering bees in cellars. |
| 304 Growing and curing hops. | 763 Bark beetles and pinhole borers. | 1017 Cattle scab control. |
| 354 Onion culture. | 767 Goose raising. | 1018 Hemorrhagic septicemia. |
| 414 Corn cultivation. | 776 Cherries east of Rocky Mountains. | 1025 Larger cornstalk borer. |
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 3 Improved sanitation in milk production.
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 84 Planting black walnut.
 85 Cropping to prevent erosion.</p> |
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Eshelman

GUARANTEED FEEDS

The thoughtful farmer when he buys feed *really* buys more eggs, more *meat*, more *milk*. The feed which gives him these is actually cheaper (even if it costs a few cents more) than the feed that fails to do so. Cost is more a matter of results than of investment. On this and following pages you'll find a complete list of the Eshelman guaranteed feeds for Dairy, Poultry, and all Livestock. You can use these feeds with confidence.

ESHELMAN DAIRY FEEDS

For Raising Calves:

Eshelman Red Rose Calf Starter

For Feeding with Home-Grown Grains:

Eshelman 32% Mixing Ration

For Feeding with Low Grade Roughage:

Eshelman Golden Rod 25% Dairy Feed, or

Eshelman Red Rose 24% Dairy Feed

For Use with Medium Grade Roughage:

Eshelman Lancaster 20% Dairy Feed, or

Eshelman Conestoga 20% Dairy Feed

To Supplement Summer Pasture:

Eshelman Pennsy 16% Dairy Feed

For Dry Cows and for Feeding Immediately after Calving:

Eshelman S-O-S (Sack-of-Silage)

S-O-S is a wonderful conditioner because of its combined laxative and toning-up effect on your herd. Use Eshelman Sack-of-Silage also:

1. In the spring when silage gets low. S-O-S plus water makes good ensilage.
2. When no silage is available on your farm.
3. During the winter months in place of pasture.
4. When fitting cows for test.
5. For feeding bulls, or young or dry stock (unless in poor flesh . . . then use Red Rose Fitting Ration).
6. When the hay crop is short. Alternate hay feedings with Eshelman Sack-of-Silage.

For Producing Better Quality Beef:

Eshelman Red Rose Steer Feed

Eshelman GUARANTEED FEEDS

POULTRY FEEDS

In poultry feeding there are three definite objectives to be borne in mind: Growth, Egg Production, Increase of Flesh. To attain these objectives different rations must be fed in each case, and different systems of feeding adopted. The brief description given here, of Eshelman Poultry Feeds, merely outlines their purpose; a complete feeding schedule should be followed. We will gladly supply such a schedule free of charge, upon request.

Eshelman Poultry Feeds

First 48 hours: No feed, water, or litter

48th hour to 7th day: Eshelman Red Rose Chick Starter, or
Eshelman Red Rose All-Mash Starter

7th day to 7th week: Eshelman Red Rose Chick Starter, or
Eshelman Red Rose All-Mash Starter with
Eshelman Red Rose Chick Grains

7th week to maturity: Eshelman Red Rose Growing Mash
Eshelman Red Rose Intermediate Chick Feed

Laying Hens and Breeders:

Eshelman Red Rose Laying Mash
Eshelman Red Rose Scratch Grains

For Flesh:

Eshelman Red Rose Fattening Mash
Eshelman Red Rose Scratch Grains

For Broilers:

Eshelman Red Rose Growing Mash, or
Eshelman Red Rose All-Mash Starter
Eshelman Red Rose Fattening Mash

For Turkeys:

Eshelman Red Rose Turkey Mash

For Ducks:

Eshelman Red Rose Duck Mash

For Pigeons:

Eshelman Red Rose Pigeon Feed

Too much importance cannot be attached to the necessity for using clean, wholesome food of the proper kind. Eshelman Guaranteed Feeds contain all the elements needed for producing healthy, profitable birds.

Eshelman GUARANTEED FEEDS

ESHELMAN HOG FEED

The profitable pig is the one that never stops growing from farrowing time to marketing. First: make sure that you get large, healthy litters and save them to market weight. Second: feed them grain and pasture supplemented with Eshelman Hog Meal. Your pigs will thrive on this diet.

For a Complete, Balanced Hog Ration to produce Solid, Healthy Pork, use

Eshelman Red Rose Hog Meal

For Supplementing Home-Grown Grains, use

Eshelman Red Rose 32% Hog Meal

Hog down the corn—but supplement with Eshelman 32%!



OTHER ESHELMAN FEEDS

For Rabbits: Eshelman Red Rose Rabbit Feed
Eshelman Red Rose Rabbit Pellets

For Horses: Eshelman Red Rose 85 Horse Feed
Eshelman Conestoga Horse Feed
Eshelman Lancaster 60 Horse Feed

For Dogs: Eshelman Red Rose Dog Biscuit—Whole or Kibbled
Eshelman Red Rose Dog Food

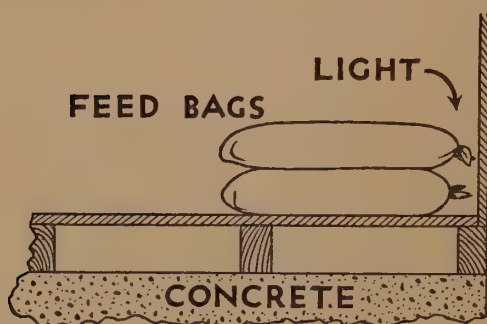
Eshelman

GUARANTEED FEEDS

CARE OF YOUR FEED

We want every bag of Eshelman Feed to be a messenger of Good Will. It is sent to you through our distributors, with the knowledge that your valued patronage depends entirely upon the profitable results produced through its use. This trade-mark, Eshelman GUARANTEED FEED, appearing on all our products, is your guarantee of safety and satisfaction.

Every effort is made to supply you with clean, fresh, well-packed feeds. Take care of the feed you buy; avoid needless spoilage and waste.



Cross-section of floor of feed house showing how to safely store your feed on a board floor over concrete.

For *BEST RESULTS*—observe the following precautions:

1. Be **SURE** the Feed is in good condition when you receive it.
2. Have it delivered to you in new, clean bags.
3. Keep your Feed out of the weather. Store only in a clean, dry place, away from exposure.
4. Don't store Feed against damp walls or on cement floors. If there is a cement floor in your house, lay clean, dry boards before piling.
5. Move old stock to the front of the pile and use it first. Don't allow Feed to become stale.
6. Have your dealer deliver only as much Feed as you can use in a reasonable time.
7. Rats and mice are expensive pests—exterminate them. If rat poison is used, keep at a safe distance from your Feed.

THE *Eshelman* PLANTS

Few feeders realize the safeguards employed by a modern feed manufacturer to insure the production of clean, safe, economical feeds. A glance at the following photographs will give an idea of the many labor-saving devices used.



Unloading
Bulk
Grain,
Under-
ground
Belt
System



Cleaning
Bulk
Grain
Before
Elevating

Percentage
Feeders
Drawing
Raw
Materials
From
Supply
Bins



Three plants—one at Lancaster, Pa.; one at York, Pa.; and a third at Circleville, Ohio—manufacture Eshelman Guaranteed Feed. They are equipped with belt carriers for unloading and distributing; batteries of cleaners to screen incoming material; automatic percentage feeders for the accurate proportioning of rations; high-speed mixers; reels and electro-magnets to remove foreign matter; automatic scales; electric sewing machines, and loading devices.

THE *Eshelman* PLANTS

In our laboratories, ingredients are subjected to microscopic and chemical tests to determine values for various formulas.

In our bag factory, burlap imported from India is cut, printed, sewed and designed, making the complete sack.

Where Feeds are
Chemically Tested
and Formulas
are Scientifically
Prepared.
A Corner of the
Laboratory,
Plant No. 1



Conveying
Finished
Product
to Cars

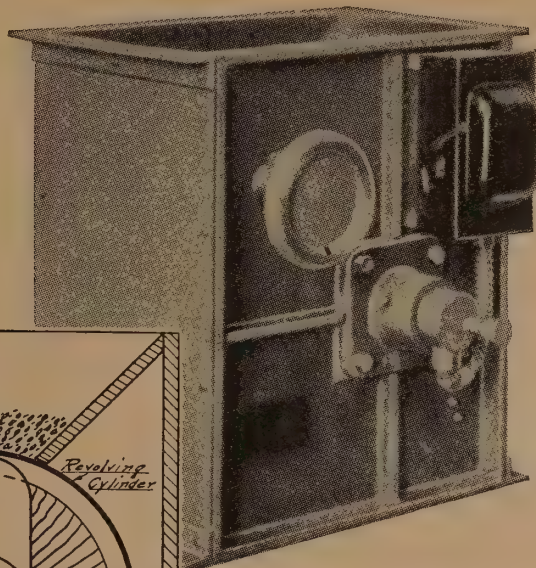
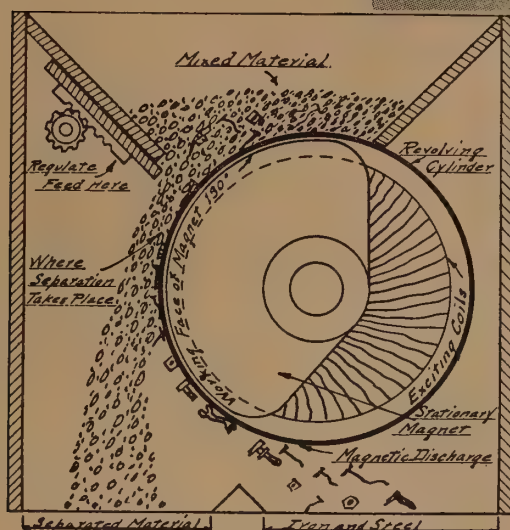
Our method of distribution through established dealers does away with costly missionary and resale work. When purchasing feed packed under the Eshelman brand, you are assured that it has been manufactured from high-grade ingredients; that it has been prepared and marketed economically by an organization with 91 years' milling experience, and that it has received the endorsement of thousands of feeders.

Each Eshelman feed is sold under a BRAND NAME. And the Brand Name is important. Why? Because the brand name is the manufacturer's guarantee of the quality of the product, and the integrity of the Company behind it; your assurance that the material is exactly as represented; our pledge to respect the confidence and best interests of the user—the thousands of feeders and dealers who have made possible the success and growth of the Company.

THE *Eshelman* PLANTS

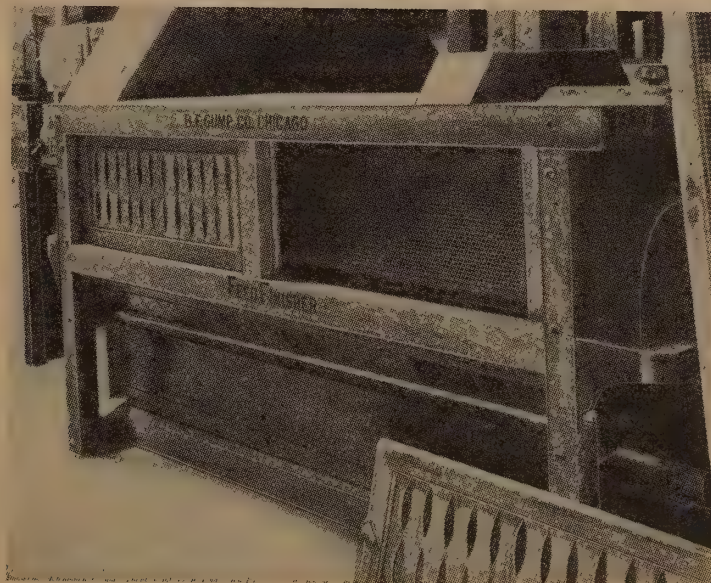
THE MAGNETIC SEPARATOR

Diagram showing
operation of
Magnetic Separator



Typical pile of metal
extracted from even
the finest grain

THE FEED FINISHER AND CLEANER



THE *Eshelman* PLANTS



Plant No 1, Lancaster Pa.



Plant No. 2. York, Pa.



Plant No. 3
Circleville,
Ohio

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